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Beyond Perception: The Experience of Risk and Stigma in Community Contexts

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Concerns about stigmatization are an important influence on the development of risk management and communication policies for a wide range of technologies and products such as those associated with hazardous waste storage, nuclear power, and genetic engineering of plants or foods. Although much attention has been placed on the adverse economic effects of stigma, we believe that the social, psychological, and cultural impacts are often at least as significant and merit greater attention from policymakers and researchers. Evidence for these impacts of stigma is found in recent studies of resource-based communities, whose residents may be shunned by local and nonlocal publics and whose products may suffer a loss of markets, which in turn creates social and economic hardship for community residents. We examine these aspects of stigma and link descriptions of the problem and prescriptions of recommended policies to five underlying characteristics of stigma, focusing on the possible insights and contributions from trade-off analysis and narrative approaches.

KEY WORDS: Stigma; risk perceptions; community impacts; trade-off analysis; narrative elicitation

1. INTRODUCTION

Use of the psychometric paradigm has greatly extended our knowledge of people's experience of risk and provided a new language for analyzing risk perceptions.[1,2] Terms such as ''dread'' and ''voluntariness'' and ''control'' are now viewed not only as technical terms for evaluating risk perceptions but as keys to initiating a dialogue between risk experts and the public stakeholders affected by risk management policies. Risk perception research also has provided a means for understanding the phenomenon of risk amplification[3] and the mechanisms by which some risk sources can evoke deeply rooted responses of concern that lead to social and economic impacts far greater than would be predicted on the basis of estimated physical harm.

In recent years, the Greek term ''stigma'' has emerged from this same risk paradigm to describe certain products, places, or technologies marked as undesirable and therefore shunned or avoided, often at high economic, social, and personal costs.[4,5] In an economic context, the stigmatization of certain products (such as apples treated with Alar, see Reference 6) has resulted in large financial losses that typically have occurred in the absence of carefully documented, or widely accepted, evidence of statistical risks. In an environmental context, the emergence of stigma is most often associated with increasing societal concerns about the ecological and human health risks of technologies, including nuclear power, hazardous waste storage, genetic engineering, and electromagnetic fields.[7,8] Technological stigma goes beyond the usual conceptions of risk to refer to something that is shunned or avoided not just

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because it is perceived as dangerous but because it overturns or destroys a positive condition (e.g., converts a welcome facility or technology into an unwelcome one). This transition signals that what was thought or hoped to be good and acceptable is thereafter marked as blemished and tainted and to be avoided. Stigmatization represents an increasingly significant factor influencing the development of risk management policies as well as the more general acceptance of scientific and technological innovations.[5]

We believe that the principle of stigmatization applies, equally, to human populations—in particular, to residents of resource communities and to those living in or nearby sites associated with technological hazards. In numerous contexts, across much of the industrialized world, a variety of land, riparian, and marine systems have been aesthetically and ecologically degraded as the result of resource extraction, manufacturing, and processing initiatives that once held society's blessing but now are seen as shortsighted at best and, at worst, as evil.[4,9] In many cases, even though responsibility may properly rest with the companies themselves, those individuals who are (or were) dependent on these systems for an economic livelihood have been blamed or socially stigmatized for realized or feared adverse impacts.[10]

This change in social perceptions has been swift: Until recently, individuals engaged in resource-based activities such as forestry, fishing, or mining were respected for their skills and their contribution to the economic health of their communities. The Pacific Northwest logger, for example, was considered the mainstay of an essential industry, a symbol of rugged individuality and physical skill. In many coastal regions of the United States, including parts of the southern Gulf states and the northeast, fishers held a similarly positive image; in the north-central and southeastern states, coal, nickel, and iron-ore miners were esteemed. In recent decades, however, this positive image largely has been overturned, replaced by the idea of loggers, miners, and those who fish commercially not as provisioners of goods that the public relies on and readily consumes but as stigmatized agents responsible for clearcut-defaced forests, mining-scarred hillsides and streambeds, or extinct salmon runs.

This article expands on the utility of the psychometric paradigm and the emerging theory of technological stigma to develop an understanding of the experience of stigma in community contexts and to evaluate various management responses. We argue that the methods of risk perception and survey research are useful but should be augmented with insights from decision analysis, in the form of in-depth explorations of individuals' values and tradeoffs, and community narratives, in the form of stories that residents tell about the social and psychological experience of living within stigmatized communities. These two approaches have the potential to help social scientists examine the phenomena of stigmatization from the perspective of those most immediately affected, that is, from the viewpoint of community residents' experience of living with risk and stigma as distinct from the perspective of technical experts' analyses of risk.

2. RISK, STIGMA, AND RESOURCE COMMUNITIES

Many excellent reviews summarize the contribution of psychometric factors such as dread, loss of control, or the uncertainty of anticipated outcomes to understanding perceptions of risk (e.g., Reference 2). New perspectives have added greatly to this core body of understanding; for example, in the past decade trust and emotions have emerged as important factors in understanding risk perceptions.[11] Further, distrust has been closely linked with worldviews[12] and both distrust and risk aversion have been found to be more common among disenfranchised groups. There is also a new understanding of the importance of the distribution of risk perceptions in the population, with women, male and female African Americans, and less-educated and lower-income men likely to regard the risks of many hazards and technologies as higher than do more educated and affluent white males.[13]

Despite this longstanding interest in the multiple dimensions of risk, relatively little work on understanding community stigma has been undertaken using techniques from decision analysis or community stories of impact. In a decision-analysis context, for example, interactive questioning typically would begin by following up each statement of an expressed risk characteristic by asking ''Why?'' If fatalities matter, for example, is it because humans or other animal species are affected? Is concern based on the number of anticipated deaths or the way they might occur? Are particular emotions (e.g., fear, anger) or contexts (e.g., a political party) associated with the expected outcome?[14] A variety of tools (e.g., influence diagrams, decision trees) can

be used to understand these effects, and explicit measures can employ either natural scales (e.g., the number of deaths) or constructed scales (e.g., an index of affect levels based on psychological and/or physiological responses) to track how well value tradeoffs are addressed by a policy option in the specific context under study.

Whereas technical risk analysis often strives for a numeric answer that defines an acceptable level of risk, decision analysis and other multiattribute methods (see Reference 29 or 30) recognize that a risk's acceptability depends on the problem context and can be understood only in association with the subjective definition of risk held by the affected stakeholders and by an examination of the tradeoffs across those economic, environmental, health, and social objectives that matter most.[14] These tradeoffs typically include both technical or engineering issues, such as the added costs imposed by reductions in emissions, and procedural issues, such as forming locally based management groups to address concerns about trust and learning.

Further, most work on stigma has emphasized experts' capability to manage the associated impacts based on fiscal, morbidity, and mortality estimates, with less attention given to the affective or ethical dimensions. As a result, the associated risk typically is viewed as an isolated phenomenon rather than as a defining or encapsulating experience; as something to be mitigated or compensated rather than something that is experienced over time and demands social management on an ongoing basis.[15] Narrative techniques are particularly useful for understanding the affective or emotional dimensions of stigmatization because their basis in conversation and experience lends itself to detailed descriptions of these important underlying factors.[16]

Most psychometric studies conducted to date also have been proactive, in the sense of anticipating responses to potential hazards on the basis of judgments offered by national, state, or local samples of respondents. Because respondents generally have been asked to imagine and rate potential hazards, their answers are necessarily hypothetical. By way of example, survey questions might ask individuals to: ''Rate each of the following risks [potentially associated with a planned activity] . . .'' in terms of the degree to which their impacts are ''known to scientists'' or ''potentially catastrophic'' or ''equitably distributed'' or ''avoidable'' and so on. An experiential focus considers, instead, case-based reactions to events and uses the concept of stigma as a tool for understanding how individuals living within resource-based communities may have been affected by environmental management decisions already taken. This social concern follows directly from Goffman's classic text, which defined stigma as ''the situation of the individual who is disqualified from full social acceptance.''[17]

We therefore seek to broaden the concept of technological stigma to include a variety of emotional and social responses that typically have been omitted from analyses of risk consequences. We refer specifically to the recent literature on stigma that shows that some places, technologies, or products become stigmatized and thereafter suffer economic losses due to their negative characterization as shown in public expressions of cognitions, word association, imagery, and consumer behavior.[5,18] The sharp decline in the market for apples due to public beliefs about Alar's carcinogenic properties, the reduction in the attractiveness of Nevada as a tourist destination if the state were selected for burial of transuranic nuclear wastes at Yucca Mountain, and the devaluation of property values near sites with strong perceived electromagnetic fields provide classic cases of product, place, and technological stigma. Although these each concern impacts of stigma through evidence of declines in economic values, we focus here on the associated impacts of stigma as a source of losses in valued social, emotional, and cultural properties.[19]

A focus on cultural and social effects goes back to the origins of the concept of stigma, which began not as an economic marker but as a social indicator. The term originally was applied to socially marginalized people in classical Greek society (e.g., criminals, adulterers) who bore a distinguishing sign or warning (e.g., a tattoo on the arm, a mark on the forehead) to designate their status and/or the risk they presented to others.[17] Social scientists have since applied this term to contemporary American contexts where some populations (e.g., minorities, gays, disabled persons) are marked as different and must therefore manage their behavior in everyday life to ameliorate the impact of being ''marked.'' The experience of being stigmatized is thus generally negative.[3] The stigmatized person becomes a

[3] This is not to ignore the fact that some stigmatized parties strategically embrace their marked status and construct an identity around that status that involves a mix of personal and social benefits.

pariah shunned by the rest of society and affected interpersonally and emotionally.

Although the concept of stigma typically has been applied in the context of hazardous activities, such as nuclear waste storage (e.g., Reference 7), or suspect new technologies, such as genetically modified foods (e.g., Reference 20), it is often equally appropriate for natural resource community contexts. In such cases, stigma exists because individuals living or working in a resource-based community can be viewed critically by local and nonlocal publics and may be shunned or avoided. At the same time, economic hardship results because the association with some technologies (e.g., clear-cut or old-growth logging) brings on negative imagery in the public mind and stimulates changes in consumer behavior (e.g., the refusal to purchase or certify wood products derived from the stigmatized practice or technology). A wide diversity of cases provides evidence of the strength of stigma as an important social, psychological, and economic phenomenon in resource communities. For example, miners are criticized (fairly or not) for the destruction to streams caused by leaching from tailings sites and extensive sedimentation. Farmers applying pesticides to their crops are shunned for destroying the landbase we all share. Operators of fish hatcheries and fish farms are criticized for interfering with natural cycles and introducing exogenous species that contribute to the demise of native salmon populations.

A well-known example of resource community stigmatization occurred recently in the forest industry of the Pacific Northwest. For nearly a century, loggers in Washington, Oregon, and northern California had comfortable (albeit fluctuating) incomes and were widely admired for their skill and for providing a product (lumber) much sought after in the marketplace. Today, logging levels on public lands in the Pacific Northwest have been reduced sharply (compared to the late 1980s), with little expectation of a return to the former harvests. Employment in the logging industry of Oregon, Washington, and British Columbia has dropped dramatically since the late 1980s, and the social and economic losses to individuals living in timber-dependent communities have been severe.[21] Downturn in the industry is the legacy of decades of industry-driven overcutting and the subsequent federal court decisions in the 1990s to suspend logging until a suitable plan to protect the endangered Northern Spotted Owl was devised. These decisions reflect the strong change in national sentiment regarding loggers and the cutting of old growth.

At the personal and community level, antipathy toward logging and widespread disdain for clearcutting has extended outward to affect those individual workers who practiced logging in the first place. This has changed the way loggers are viewed by the public at large and, in turn, the way loggers view themselves. Loggers have come to be viewed in many quarters as agents of destruction, interested in their own well-being and profit and willing to trade off long-term losses to the ecosystem in return for short-term personal gains. Many environmentalists, for example, refer to loggers and millworkers in overtly disparaging terms despite these groups' relative powerlessness in the face of the greater commercial interests that control the timber industry.[22] Several community studies reveal loggers' anger and defensiveness toward what they regard as the misrepresentation of their motives and methods, resulting in losses to loggers' rights to respect and dignity.[23,24]

A second example is drawn from an estuary clean-up initiative conducted in Tillamook County, Oregon. This rural agricultural community is known throughout the United States for its trademark line of high-end cheeses and the pristine beauty of the Tillamook River estuary. Over the past half-century, however, pollution from dairy farms has led to substantial negative impacts, primarily in the form of unusually high fecal coliform counts in local rivers and exposure to the unpleasant smells associated with a manure-rich industry. More recently, a shift in local community values has accompanied demographic changes, as retirees from the nearby cities of Portland or Seattle have moved into the Tillamook Basin and as the number of dairy farmers has declined. Many dairy farmers, until recently community leaders, now feel marginalized and—in some cases—unwelcome. They are angered by recent newspaper reports of pollution problems affecting local farmlands and streams, believing that the coverage incorrectly pictures them as having done something morally wrong when their motivation was simply to earn a living off the land. Several prominent farmers are publicly asking whether the community would prefer for the dairy industry to relocate (for example, to eastern Oregon) so as to remove farming's stigmatizing influence on local perceptions of water and air quality. In Tillamook (as in much of the Pacific Northwest forest industry), this replacement of the norm has occurred very

swiftly, largely over the past decade, which heightens its emotional and cultural impact.

3. THE EXPERIENCE OF STIGMA IN RESOURCE COMMUNITIES

To what extent can these expressions of disenfranchisement, worry, and anger among residents of resource-based communities be viewed in terms of a stigmatizing process? In their 1995 paper, Gregory, Flynn, and Slovic[5] point to five underlying characteristics of stigma (see Table I). In this section, we briefly discuss the relevance of each of these five characteristics of stigma in the context of resource-community case studies. We focus on two examples on which we've recently worked, forest-dependent communities in the Pacific Northwest and the coastal farming community of Tillamook, Oregon, although we believe that the observations are generally applicable to many different community contexts.

3.1. Underlying Risk Characteristics

Risk characteristics that underlie the stigmatization of resource communities are similar to those of more conventional stigmatized sources such as hazardous waste or nuclear facilities. Concerns about lack of control, adverse intergenerational impacts, and the extent to which risks are unknown to science all tend to be important building blocks of public perceptions. For the forest industry, these negative images tend to be concentrated on certain management practices such as the use of herbicides, harvesting of old-growth trees, and clearcuts. For example, studies of the perceived ecological risks associated with forest management initiatives demonstrate that clearcuts are viewed by a wide majority of the public as unacceptable.[25,26] Further, public worries about animal and plant suffering or ecological destruction correlate highly with negative emotionality.

In some ways, however, the language that characterizes perceived risk and thus perhaps the meaning and experience of risk is distinct from the language and experience of stigmatized natural resource workers or stigmatized residents of a contaminated community. Consider the example of ''dread,'' which has played a prominent role in studies of health risks.[1,2] In the risk literature, respondents often are asked to rate controversial health risks (e.g., nuclear waste storage, genetically modified foods, tainted blood) on scales that include how viscerally dreaded each item is felt to be. Yet the dread is abstract to the extent that only a very small percent of any national sample can be said to be speaking from immediate experience; it is an imagined and potential risk that is highly feared or dreaded.

In stigmatized communities, many of the strongest risk characteristics are those related not to residents' own direct experience of a risk (e.g., dread of health consequences) but rather to their experience of how they are viewed by others. This was emphasized by a wheat farmer living near the Hanford (nuclear) reservation, quoted in the *Seattle Post-Intellingencer* newspaper: ''It is peoples' perception of what is going on that scares me.'' In their studies of ecological risks, McDaniels *et al.* (Reference 25, p. 577) report that the ''notion of personal dread (fear) was [neither] mentioned [nor] apparent'' but use of words such as anger, disgust, frustration, or sadness was common. In timber-dependent communities, dread (aside from dread of an absent or diminished paycheck) was also largely irrelevant. The stigmatization of loggers was infused instead with fears of how others would view them, based on perceptions of loggers as ''drunken louts whacking down trees with reckless abandon.'' (Reference 24, pp. 77–79).

3.2. Overturning of a Norm

Throughout much of the 19th and 20th centuries, those who worked in resource industries as

Table I. Identifying Features of Stigma

1. The source of the stigma is a hazard with characteristics, such as dread consequences and involuntary exposure, that typically contribute to high perceptions of risk.
2. A standard of what is right and natural has been violated or overturned because of the abnormal nature of the precipitating event (e.g., crude oil on pristine beaches and the destruction of valued wildlife) or the discrediting nature of the consequences (e.g., innocent people are injured or killed).
3. Impacts are perceived to be inequitably distributed across groups (e.g., children or pregnant women are affected disproportionately) or geographic areas (e.g., one city bears the risks of hazardous waste storage for an entire state).
4. Impacts are unbounded, in the sense that their magnitude or persistence over time is not well known.
5. Management of the hazard is brought into question with concerns about competence, conflicts of interest, or a failure to apply proper values and precautions.

Note: Adapted from Reference 5.

loggers or miners or fishers were seen as hard-working people who provided essential products. This norm has since been overturned. Loggers talk about how the wish for production of manufactured lumber from trees has been replaced by a desire on the part of many people to preserve the naturalness of the ancient trees and forests. It is as if Darth Vader has replaced Paul Bunyan as the dominant mythic figure in the public eye. What was once seen in a positive light as extracting goods from nature and creating respected employment, now is viewed as destructive of the natural order of the world and equated with rape and pillage.

At a community level, there also has been a decided shift in the established norm. The rural communities where many loggers live were seen by their residents as indicative of a simple, healthy lifestyle, free of many urban stressors. Although this image still remains for some residents, many now view themselves and their community in more negative terms, as anachronistic and passed over in the rush for new technologies and new ways of living. As a result, many timber-dependent communities find themselves destabilized socially as well as economically. Efforts to restore stability (e.g., by creating new opportunities for children after high school) and overcome the damaging influence of stigmatization are underway in many Pacific Northwest communities, although the focus is generally on providing employment via nontraditional means of support. Thus, the future employment of loggers may be in stream restoration or software assembly, occupations that may not successfully recreate the cultural norms associated with a logging community.

3.3. Inequitable Distribution of Costs and Benefits

The benefits of resource products accrue to a wide range of users: it is hard to conceive of modern life without the products derived from forests, mines, farms, hydroelectric and nuclear power plants, and so forth. The costs associated with production of these same products, however, tend to accrue locally. Consumers of Tillamook cheese can simultaneously praise the high quality of the food they consume and denigrate the Tillamook community for its presumed inability to deal effectively with the impacts of agricultural pollution. Similarly, consumers of nuclear power can simultaneously enjoy the benefits of reliable electricity in their homes and shun those living in communities adjacent to where the reactors are sited. This perceived inequality in the distribution of costs and benefits can lead to frustration and feelings of isolation and marginalization on the part of those living in resource communities.

Of course, resource communities also derive benefits from the use or extraction of specific natural resources, principally in terms of employment. In terms of the allocation of economic benefits, however, there is frequently a marked inequality in the distribution of community employment opportunities. When times are good and sales are high, everyone in the community shares in the benefits, from the direct employment given to woods-workers or dairy farmers to the indirect employment provided by the retail and service sectors. When stigma-induced effects lead to a sharp downturn in sales, however, such as occurred in the late 1980s due to the Alar scare affecting Washington state apple growers, the direct local workers (in this case, apple growers) are the first to be laid off or to become part-time employees and thus are disadvantaged to a greater extent than others in the community whose incomes are less dependent on a single resource. This inequality is being felt today in many northwest communities, with the costs of unemployment focusing on loggers or fishers or farmers whereas the new diversification of the employment base is helping to maintain income levels for those in the retail and service sectors.

Another aspect of this inequality of costs and benefits is that the adverse effects often include only a portion of those engaged in the extraction of a resource. In Pacific Northwest forests, for example, much of the decrease in harvest is tied to new and newly enforced laws that protect threatened and endangered species living in old-growth forests on public lands. Other sectors of the workforce, engaged in harvests from second-growth trees and private forests or in secondary manufacturing, generally have not experienced the effects of stigmatization to the same degree. In fishing, the circumstances are similar, with differences in the decline of various species or stocks resulting in some commercial fishermen being more hard hit economically and more shunned socially than others. Thus the costs of stigmatization, fairly or not, may be distributed unequally even within the resource-extraction sector, leading to secondary social effects that can be just as hard to deal with as the direct impact of a reduction in timber or fish harvests.

3.4. Unbounded Outcomes and Persistence Over Time

Environmentally based stigmas are an example of a sequence of outcomes that may show very little effect for a long time but then quickly yield visible consequences. Many communities that produce or store hazardous wastes (e.g., the Tri-Cities in eastern Washington) functioned quietly and prosperously until the Three Mile Island incident coalesced dormant concerns about safety and created the preconditions for stigmatization. Similarly, logging and salmon fishing on the west coast proceeded uncontested at a fairly even pace for a long period before the increased concern for environmental quality stigmatized actions that only a short time before had been relatively acceptable. Postcards from the 1950s, for example, prominently display clearcuts as part of Oregon's scenic panorama; by the 1980s, these same images were instead equated with destruction and waste. The duration of such negative responses is difficult to predict; at present, the attempts of some ecologists to reintroduce small-scale clearcuts (versus more widely distributed cutting) as part of a balanced, ecosystem management forest plan are often opposed by public groups.

Unbounded outcomes also can hinder initiatives undertaken to restore the ecological base of a region or community. Actions frequently lack a clear stopping rule: Is the goal to improve current conditions (i.e., cleanup), to return to historical conditions (i.e., restoration), or to achieve compliance with specific legislation? As a result, heated debate among different stakeholder groups often ensues regarding what constitutes completion of specific activities, ranging from the cleanup of contaminated soils to the restoration of instream habitat. Meanwhile, the background biological environment may also be changing due to global warming or development, further complicating agreement on the definition of a completed initiative.

Policy initiatives undertaken to address the sources of stigma also may affect the status of relationships in a community, leading to persistent social discord. Mitigation policies, for example, may result in changes in a community's self-image, such as when some local residents welcome new regulations but others perceive them as imposed and yet another sign of interference from a distant government bureaucracy. Even after the completion of a specific initiative, there may exist a lingering worry that control of the local economy has passed out of local or regional hands and into the hands of an unfamiliar state or federal government body. Disagreements over the implications of a proposed action, in terms of its impacts or timing, also may lead to local disillusionment and a loss of morale: If the experts can't agree that a socially costly action is worthwhile, why is it being done?

3.5. Unclear Management and Policy Response

In the case of the old-growth forests of the Pacific Northwest, the mid-1990s saw the creation of a policy response that emphasized the virtues of an ''ecosystem management'' approach that includes the nontimber services of the forest as well as timber products. Yet this did not preclude the nearly simultaneous introduction of a timber salvage rider that permitted logging in previously protected areas. A similar lack of clarity stems from the gap between the scientific wisdom of ecosystem-based management concepts and the reality of their on-ground application.[26] In many cases, a decade of experience in ecosystem management practices has failed to provide clear answers to some of the essential questions regarding vegetation management practices (e.g., the use of chemicals), land utilization (e.g., the role of slash burning), and stand regeneration (e.g., the importance of thinning).[27]

Management responses are also unclear from the standpoint of industry's reaction to the stigmatization of specific practices. With company structures and decision making increasingly governed by nonlocal CEOs and opportunities in international markets, it is not always clear who has responsibility over what aspects of forest operations. Conventional practices within one company may change, seemingly overnight, if it is acquired by another (a growing fear in the current era of globalization and corporate mergers). Government policies may change, seemingly without reason, as the identity of leading parties changes after an election (for example, ''salvage'' logging in Pacific Northwest forests increased dramatically following the 1994 elections). International repercussions of decisions may strongly affect local interests, with a mill or fishery closed because of competitive pressures applied from half-way around the world. In all these cases there is no obvious policy response that is going to move things toward a better state, whether backward (to a prior equilibrium) or forward (to a new status quo).

4. INCORPORATING COMMUNITY STIGMA INTO RISK STUDIES

Much of the literature on technological, product, and geographic stigma has emphasized the adverse economic effects that can accompany the social construction of stigmatization. We have noted that there are also significant social effects on resource communities and the individuals living there, as evidenced by the experience of communities whose social structure is thrown into upheaval, or whose livelihood is threatened, due to the presence of stigmatized technologies (e.g., clearcut logging, pesticides) or the stigmatization of locally produced products (e.g., old-growth timber) or their byproducts (e.g., agricultural wastes).

A variety of techniques, drawn largely from the fields of cognitive psychology, sociology, anthropology, and the decision sciences, have been found useful in the study of community stigma. Here we focus on two specific approaches, trade-off analysis and narrative elicitation, which we have applied as stakeholder-based tools for helping to understand responses to the occurrence of community stigma. Trade-off analysis is useful because of the insights it can provide into the balancing of competing objectives held by residents. Narrative methods are useful because of the perspective they provide on the stories told by residents as they attempt to make sense of their situation. Both approaches can usefully augment the results of economic and psychometric studies of stigma.

4.1. Trade-Off Analysis

A variety of techniques drawn from the practice of decision analysis can help community residents to more closely define the impacts they associate with stigmatization and the perceived efficacy of mitigation alternatives.[28] These techniques share a common structure in that they begin by carefully defining the problem and stakeholders' primary values or objectives, then use this information to assess the consequences of alternatives that can address these concerns. Trade-off analysis focuses on the gains and losses associated with an alternative, in terms of ways that improvements to one objective (e.g., more rapid clean up of a pollution source) can be made at minimal cost to other objectives (e.g., protection of fisheries habitat or local participation in decision making).[29]

A decision-analysis approach recently was used to help design policies addressing the sources and consequences of environmental stigma as part of an EPA-funded study at Tillamook Bay, Oregon.[30] We asked approximately 80 selected Tillamook residents to evaluate a series of alternative actions using a workbook format that required them to make tradeoffs among economic, ecological, and health impacts. The specified impacts, as well as the selected actions, had been identified previously through a series of structured small-group elicitations using techniques derived from the practice of decision analysis, including tools such as means-ends networks and influence diagrams that help to identify the relationships among key concerns. The two-hour workbook sessions were designed to clarify participants' understanding of the problem (i.e., the policy context), their objectives (i.e., what matters to them), a range of relevant alternatives (i.e., the possible actions), and the most likely effects of these actions (i.e., consequence ranges).

Participants in these groups included public stakeholders and technically trained scientists. One challenging aspect of eliciting residents' views, particularly in the early stages of the project, was that it was often hard to attract local stakeholders as participants: previous surveys and evaluation efforts had left the local population feeling simultaneously burned out (a function of too many meetings over too many years) and disenfranchised (a product of the social stigma induced by recent changes in the community and, perhaps, the ineffectiveness of these earlier studies' results). As a consequence, trust in local managers was low and trust in the ability of outside experts to help in a meaningful way was even lower. Furthermore, a strong rural ethic meant that regulation and government involvement in any form was viewed by many as the enemy and accompanied by high emotion and negative affect. We were able to successfully overcome these obstacles, but only with the help of an influential local group (the Tillamook Futures Council) and the investment of substantial time working in the area and getting to know local residents.

The results obtained from the trade-off-focused workbooks were used by policymakers to help create and evaluate alternative actions that could meet many of the objectives of both agency scientists and local residents while keeping an eye on the overall costs and their distribution. Although residents expressed a high level of support for many of the proposed actions to improve the environment,

mitigation efforts to avoid inequalities in the incidence of costs were considered a top priority. Residents also wanted a high degree of local participation in decision making to overcome a broadly perceived shift in control from the local community to state and federal agencies.

Overall, local concerns extended beyond predicted physical and economic impacts to the social and cultural consequences associated with stigmatization of local products, places, or people. For example, some of the most cost-effective means for controlling pollution—such as building fences alongside streams—were often opposed by many participants due to a fear they would be seen by outsiders as acknowledgment of the existence of a problem and, in turn, harm the community's positive image. Instead, less cost-effective initiatives (such as rechanneling waterways) were favored by many participants because these actions were viewed as more ''natural'' and less likely to further stigmatize the local area.

As was clearly understood by many local residents, a good reputation is in many ways the opposite of stigma, something that attracts rather than repels and that is to be embraced rather than avoided. Reputations, however, also can be fragile: participants recognized that sales of Tillamook cheese are linked to perceptions of the quality of the local environment, and thus if the problems with pollution levels in the bay or rivers were to become widely known, then sales of Tillamook cheese could decline dramatically even if there were no direct relationship between these polluted areas and cheese production.[4] Further, as was clearly expressed by several local businesspeople, the ability of managers or owners to respond to a stigma-related drop in sales and to quickly restore the product's reputation would be very limited. Even after the source of the reputation loss were taken care of, experience demonstrates that the strong affective reaction that led to stigmatization could linger for a long time.

[4] In fact, the Tillamook area is not pristine: it was the site of several large forest fires in the early 1900s and many grazing areas are on land reclaimed from the estuary with the help of dykes and other man-made barriers. However, the advertising of the local dairy cooperative has been very successful in picturing the Tillamook area as a bucolic natural area where the happiness of the cows translates into a higher quality (and more expensive) cheese product for consumers.

4.2. Narrative Elicitation

Personal narratives can provide an effective means for stakeholders to address aspects of the stigma experience that are not easily elicited through the declarative statements of survey protocols. For example, a stakeholder may easily be able to respond affirmatively to a survey question inquiring after one's willingness to support a clean-up initiative in the local area. Ultimately, however, what needs to be revealed to researchers is what an affirmative response means for the stakeholder and how he or she thinks completion of the activity would affect the stakeholder's sense of well-being or willingness to support a proposed mitigation activity. This larger meaning often can be conveyed effectively using the elicitation of narrated expressions of stakeholders' subjective experience of events, providing a means for members of the community to talk about, and to actively think through, their perceptions of stigmatization and the desirability of policy proposals.

Stigma involves in part the experience of how one is seen by outsiders and the way the signaling of risk events exacerbates the psychological experience of an ecological or technological risk. The media is often a decisive factor in this amplification (signaling) of risks and the construction of stigma effects. An example of the use of narrative expressions to understand media influences is provided by a study of how Oregon loggers viewed specific media images,[24] such as photographs of clearcuts. Although loggers admitted that clearcuts make a terrible mess, they resented finding themselves associated with visual images of ecological destruction rather than with the provision of wood products widely consumed by all members of society. One indication of their fear of stigmatization is that some loggers were hesitant to state their job affiliations publicly—''I don't want to tell people... I'm half owner of a small logging company, I don't want to get trashed for that''—because they second-guessed a derisive response (Reference 24, p. 79).

A parallel example can be found among residents of contaminated communities who are ambivalent about clean-up initiatives because of the adverse exposure that can accompany designation of a town as a Superfund site and the mitigation efforts that follow. Consider the case of a community in rural Georgia, where the production of arsenic-based pesticides led to the contamination of local soil and water. Setting aside the benefits of cleanup,

residents couldn't help but wonder what the viewers of TV coverage would think about the images of their neighborhood as fenced and covered with signs warning ''Keep Out!'' One woman was particularly concerned that her association with the marked settings (the contaminated neighborhood in which she lived) would serve to mark herself: ''I reckon they said [think]: well what kind of neighborhood is this that has fences and barbed wire. That must be a bad neighborhood. They're bad folks that got fences up around here.''[19]

Further, this perceived linkage from a contaminated/bad environment to contaminated/bad people can mean that it is very difficult to attract community residents as stakeholders to a consultative table charged with recommending new risk management policies. In particular, social stigmatization means that rank-and-file resource workers tend to resist involvement in many public participation or consultation processes because they view themselves as forgotten, disenfranchised, or already dismissed as anachronistic and thereby doubt their ability to exert influence over the emerging vision of the community's future. Yet many policy efforts aim at including the public in a dialogue about resource management options and frame that dialogue around the expression of important community values. The effect of stigma is to leave some community members in a deficit position because from the start the discussion of values (e.g., loggers' or fishers' values) is silenced by these stigmatized stakeholders' anticipation of a negative response.

Narrative expressions of perceived stigmatization may also be advantageous (versus traditional survey responses, for example) for capturing emotional responses in risk policy contexts. The rich affective content of the experience of living in a stigmatized community is anticipated by Goffman,[17] who notes that the social isolation of the stigmatized can lead to depression, hostility, and anxiety. These are difficult considerations to factor into a risk mitigation or management plan. Yet eliciting emotional responses effectively is essential to understanding the experience of stigma, despite the common impulse among some social scientists and risk managers to dismiss the impassioned comments of stigmatized stakeholders.

Accusations of excessive emotion are a common mechanism through which already marginalized groups are dismissed on the basis of being irrational and thus undeserving of attention.[31] A northwest timber activist, for example, insisted that loggers were denied access to a public forum event because it was assumed that the loggers would be disruptive and ''that we were going to destroy everything'' (Reference 24, p. 78). The omission of individuals who refuse to participate in community surveys or contingent valuation (and other willingness-to-pay) assessments of mitigation or clean-up options will only serve to further these stakeholders' perceptions that they are unrecognized or underrepresented. In such cases, the problem may rest with the method rather than the individuals, and the use of narrative approaches may provide a useful means for including input from stakeholders whose values otherwise would be omitted from consideration.

Dismissing emotion-laden comments can also forego an important opportunity to understand those values that are most deeply held, values that often define intergroup conflicts about the appropriate use of natural resources. In light of the linkages that have been shown between emotion, values, and behavior, paying attention to emotional discourse may lead to greater insights into the fundamental values held by stakeholders.[32] Emotion-laden narratives can thus help to reveal the chain of reasoning that connects an emotion with a desired action or statement about preferred future actions. In many cases, the outputs of a narrative dialogue can provide a language for incorporating affective or emotional concerns into a trade-off analysis or other more structured valuation format. Thus, the less structured dialogue that is part of a narrative elicitation may yield insights into an appropriate constructed measure or scale that can be used to assess the performance of a policy alternative, for example, in terms of its ability to satisfy a strongly affective objective such as ''enhancing community stability'' or ''retaining a positive community image.''[33]

5. CONCLUSIONS

Changes in resource utilization have resulted in changes in the costs, risks, and benefits experienced by residents of resource-based communities. These changes have been detailed in terms of economic, environmental, and social consequences. But beyond these, there remains the stigma experienced by residents of these communities, particularly in cases where (1) a change from positive to negative status, the restructuring of a norm, is relatively sudden, (2) the costs and benefits are of uncertain duration and inequitably distributed within the

community, and (3) the appropriate management prescriptions are unclear.

Unfortunately, mechanisms for understanding stigma and for developing appropriate policy responses are not well understood. Techniques of economic impact analysis and psychometric surveys have been used to gain an initial understanding of the scope and consequences of stigmatization arising from the avoidance of products, technologies, or a place. In this article we argue for the inclusion of insights from two additional types of studies, examining individuals' tradeoffs and their use of narratives, in order to understand more fully the personal, group, and community aspects that accompany the experience of stigma in different communities.

For all of us, the place we live and the work we do provide a basis for definition, direction, and self-reflection. When the mental and physical experience of place undergoes a rapid and negative change, not only the economic welfare of residents but also their sense of self and well-being can suffer.[34] Worries about one's personal situation—being out of work, being ill—merge with worries about the condition of the stigmatized community and how it will be portrayed by both neighboring ''others'' and the media. These social considerations need to be factored into any mitigation initiatives designed to address the adverse economic consequences of stigmatization. In addition, it should be recognized that initiatives that might be viewed as positive and helpful from the standpoint of economic or health considerations (e.g., protecting residents from contaminated properties with barriers and signs or building fences along streams to protect riparian zones) may be opposed out of concern that they further fuel the same social stigma and emotional fears that they were thought to appease.

Ultimately, the goal of mitigation initiatives is to address the well-being of residents in the affected community or region. This is, at best, a difficult enterprise;[35] the important role of the media in shaping comparative perceptions of self and community makes the measurement of well-being particularly difficult and fluid in the case of stigmatized communities. Our objective in this article is to highlight the psychological and emotional, as well as economic, aspects associated with the experience of living in a community that has been fundamentally redefined by the experience of stigma. This broader set of concerns needs to be evaluated carefully in the context of developing an appropriate, and ultimately successful, policy response.

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